AMENDMENTS TO THE CLAIMS

1-96. (Cancelled)

97. (Currently amended) A method of processing a cell population that comprises adipose-derived stem cells, comprising:

removing adipose tissue that comprises a cell population that comprises adipose-derived stem cells from said patient;

introducing the removed adipose tissue that comprises said cell population that comprises adipose-derived stem cells into a self-contained adipose-derived stem cell processing unit configured to maintain a closed pathway, wherein said self-contained adipose derived stem cell processing unit comprises:

a tissue collection container that is configured to receive adipose tissue that is removed from a patient, wherein said tissue collection ~~chamber~~container is defined by a closed system;

a first filter that is disposed within said tissue collection container, wherein said first filter is configured to retain a first component of said unprocessed adipose tissue and pass a second component of said unprocessed adipose tissue, such that said first filter separates said first component from said second component, and wherein said first component comprises a cell population that comprises adipose-derived stem cells and said second component comprises lipid, mature adipocytes, and saline;

a cell collection ~~chamber~~container, which is configured to receive said first component comprising a cell population that comprises adipose-derived stem cells from said tissue collection container, wherein said cell collection container is within said closed system;

a conduit configured to allow passage of said first component comprising a cell population comprising adipose-derived stem cells from said tissue collection ~~chamber~~container to said cell collection ~~chamber~~container while maintaining a closed system;

a cell concentrator disposed within said cell collection ~~chamber~~container, which is configured to facilitate the concentration of said first component

comprising a cell population that comprises adipose-derived stem cells so as to obtain a concentrated population of cells that comprises adipose-derived stem cells, wherein said cell concentrator comprises a centrifuge or a spinning membrane filter; and

an outlet configured to allow the aseptic removal of said concentrated population of cells that comprise adipose-derived stem cells;

separating and concentrating said cell population that comprises adipose-derived stem cells from said removed adipose tissue within said self-contained cell processing unit while maintaining said closed pathway; and

cooling said concentrated cell population that comprises adipose-derived stem cells.

98. (Canceled)

99. (Previously presented) The method of Claim 97, wherein said adipose tissue that is removed from said patient is lipoaspirate.

100. (Previously presented) The method of Claim 97, wherein said adipose tissue that is removed from said patient is obtained by excisional lipectomy.

101. (Canceled)

102. (Previously presented) The method of Claim 97, further comprising a disaggregation step, wherein said cell population comprising adipose-derived stem cells contained in the removed adipose tissue is mechanically or enzymatically disaggregated from said mature adipocytes and connective tissue present in the adipose tissue that was removed from said patient prior to separation.

103. (Canceled)

104. (Previously presented) The method of Claim 97, wherein said cell concentrator comprises a spinning membrane filter.

105. (Previously presented) The method of Claim 97, wherein said cell concentrator comprises an antibody.

106. (Previously presented) The method of Claim 105, wherein said antibody is selected from the group consisting of AP2, CD3, CD19, and CD11b.

107. (Currently amended) The method of Claim 97, wherein said cell concentrator comprises a centrifuge.

108. (Previously presented) The method of Claim 102, wherein said disaggregation step comprises an enzymatic digestion.

109. (Previously presented) The method of Claim 108, wherein said enzymatic digestion comprises a collagenase.

110. (Previously presented) The method of Claim 108, wherein said enzymatic digestion comprises a neutral protease.

111. (Previously presented) The method of Claim 108, wherein said enzymatic digestion comprises trypsin.

112. (Previously presented) The method of Claim 97, wherein said adipose-derived stem cells in said concentrated cell population that comprises adipose-derived stem cells are at least 0.1% of the cellular component.

113. (Previously presented) The method of Claim 97, wherein said adipose-derived stem cells in said concentrated cell population that comprises adipose-derived stem cells are between about 2% and about 12% of the cellular component.

114. (Previously presented) The method of Claim 97, wherein said adipose tissue removed from said patient that comprises adipose-derived stem cells has a concentration of about 2×10^7adipose-derived stem cells/100ml adipose tissue.

115. (Previously presented) The method of Claim 97, wherein said concentrated cell population that comprises adipose-derived stem cells comprises endothelial precursor cells.

116-119. (Canceled).

120. (Previously presented) The method of Claim 97, further comprising removing a portion of said cooled, concentrated cell population that comprises adipose-derived stem cells from said self-contained cell processing unit.

121. (Previously presented) The method of Claim 120, wherein said cooled, concentrated cell population that comprises adipose-derived stem cells that is removed from said self-contained cell processing unit is cryopreserved.

122. (Previously presented) The method of Claim 97, further comprising providing an additive to said concentrated cell population comprising adipose-derived stem cells.

123. (Previously presented) The method of Claim 122, wherein said additive is a tissue or tissue fragment.

124. (Previously presented) The method of Claim 122, wherein said additive is demineralized bone.

125. (Previously presented) The method of Claim 122, wherein said additive is a compound of the thiaglitazone family.

126. (Previously presented) The method of Claim 122, wherein said additive is insulin.

127. (Previously presented) The method of Claim 122, wherein said additive is an exogenous DNA.

128. (Previously presented) The method of Claim 122, wherein said additive is a biological or artificial scaffold.

129. (Currently amended) The method of Claim 128, wherein said biological or artificial ~~scaffold~~ scaffold is a resorbable plastic sheath.

130. (Previously presented) The method of Claim 122, wherein said additive is an immunosuppressive agent.

131. (Previously presented) The method of Claim 130, wherein said immunosuppressive agent is selected from the group consisting of cyclosporine, myophenylate mofetil, rapamycin, and antithymocyte globulin.

132. (Previously presented) The method of Claim 122, wherein said additive is a cell differentiation agent.

133. (Previously presented) The method of Claim 132, wherein said cell differentiation agent is a cytokine.

134. (Previously presented) The method of Claim 132, wherein said cell differentiation agent is a growth factor.

135. (Previously presented) The method of Claim 122, wherein said additive is an antimicrobial agent.

136. (Previously presented)The method of Claim 123, wherein said additive is unprocessed adipose tissue.